

ON FISHES FROM THE PERSIAN GULF, THE SEA OF
OMAN, AND KARACHI, COLLECTED BY
MR. F. W. TOWNSEND.

(With 3 Plates.)

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Mr. F. W. Townsend, who has, within the last few years, presented to the British Museum several collections of fishes from the Persian Gulf, the Mekran Coast and Karachi, and also some specimens dredged, at considerable depths in the Sea of Oman, has again collected a large series at these localities and also at Muscat.

This contains examples of 18 species which are described below as new to science. I have added complete lists of the Fishes of the Persian Gulf and the deep-sea forms from the Sea of Oman which have been received from Mr. Townsend. In the case of those from Muscat, I have given only those species which do not appear in Steindachner's recent list (Denkschr. Ak. Wien., lxxi, 1902, p. 123), whilst a list of those from the Mekran Coast is being published in the Imperial Baluchistan Gazetteer.

Willey (Zool. Results, vi, p. 719, 1902) has noted the vertical position of *Amphiside* when swimming, and gives a figure representing it with the head upwards. One may feel inclined to suspect the correctness of this figure in view of the following interesting observation of Mr. Townsend on specimens of *A. strigata* (Gthr.):—"Some of them were sufficiently alive when dredged to swim in a tub of water, the position they took up being head down, and they swam about in a vertical position using the three fins near the tail to propel themselves, the middle fin seeming to have the most business to do."

Mr. Townsend writes that Mr. and Mrs. Whitby Smith have taken great interest in his collecting, and I have named two new species, *Percis Smithii* and *Callionymus margaretæ*, in their honour.

1. DESCRIPTIONS OF NEW SPECIES.

HEMIRHAMPHUS SINDENSIS.

Depth of body about $1\frac{2}{3}$ times its breadth and $9\frac{1}{2}$ times in the length (without caudal); length of head $2\frac{2}{3}$ times. Diameter of eye $1\frac{1}{3}$ times in the postorbital part of head and nearly equal to the interorbital width. Length of lower jaw in front of the termination of the upper jaw a little longer than the rest of head; upper jaw as long as broad;

præorbital a little deeper than long. Dorsal 14 ; anal 15 ; both scaly and commencing nearly opposite each other ; pectoral as long as distance from posterior margin of operculum to anterior edge of pupil ; origin of ventrals equidistant from anterior edge of præoperculum and base of caudal ; caudal forked. Scales deciduous, 50-55 in a longitudinal series. A silvery stripe on the side becoming broader posteriorly.

Length, to base of caudal, 188 mm.

A single specimen from Karachi.

APOGON HOLOTÆNIA.

Depth of body nearly equal to length of head, $2\frac{3}{4}$ times in the length (without caudal). Snout $\frac{3}{5}$ as long as eye, the diameter of which is $2\frac{2}{3}$ times in the length of head, interorbital width about 5 times. Lower jaw slightly projecting ; maxillary extending to below posterior edge of pupil. Outer edge of præopercle, suborbital ring and supraclavicle finely serrated. Dorsal VII, I 9. Anal II 8. Second dorsal spine $\frac{2}{5}$ - $\frac{1}{2}$ the length of third, which is stronger and slightly longer than the fourth and equal to $\frac{1}{2}$ the length of head ; second anal spine $\frac{1}{3}$ the length of head ; soft dorsal and anal with outer edges emarginate ; pectoral extending slightly beyond, ventral nearly to origin of anal ; caudal notched, with rounded lobes. 25-26 scales in a longitudinal series. Caudal peduncle $1\frac{1}{2}$ times as long as deep. Head and body with longitudinal black stripes ; a median one from between the eyes nearly to origin of spinous dorsal ; on each side one from the snout, running above the eye and the lateral line to the caudal peduncle ; a second from the upper part of eye running below the lateral line to below the soft dorsal ; a third from tip of snout through the eye and along the middle of the side to the extremity of the caudal ; a fourth from tip of lower jaw through the base of pectoral to the caudal peduncle ; faint traces of a dusky stripe at the base of both soft dorsal and anal.

Length, to base of caudal, 44 mm.

Three specimens from Muscat, 15-30 fathoms.

This is the species figured by Day* as *A. endekataenia* (Blkr.) and which Bleeker considered to be identical with *A. fasciatus* (White). Several species have been confounded under this latter name, which differ from each other not only in form and proportions, but also constantly in the

* Fish. India, pl. XVI, fig. 7 (? fig. 4 also).

arrangement of the stripes on the body. The British Museum possesses examples of the true *A. fasciatus* from New South Wales and also from Dr. Bleeker's collection. This is the species figured by Bleeker †. In it the middle lateral stripe forms a large blotch on the base of the caudal fin, the upper lateral stripe is strongly curved above and quite distinct from the lateral line, and the stripe between them is short, extending only from the eye to the edge of the operculum.

Apogon balinensis (Blkr.) has been figured by Günther ‡ ; the middle stripe extends to the end of the middle caudal rays, the upper lateral stripe is nearly straight, and there is no stripe between these two.

Apogon novemfasciatus (C. V.) has also been figured by Günther § ; it is very similar in coloration to *A. balinensis*, but the stripes are broader, and end at the base of the caudal.

APOGON MELANOTÆNIA (Pl. III, fig. 4).

Depth of body $2\frac{2}{3}$ -3 times in the length (without caudal) ; length of head $2\frac{3}{4}$ times. Snout $\frac{2}{3}$ as long as the eye, the diameter of which is $2\frac{3}{4}$ -3 times in the length of head, interorbital width $4\frac{1}{4}$ times. Lower jaw shorter than the upper ; maxillary extending to below posterior edge of pupil. Outer edge of præoperculum and suprascapula serrated. Dorsal VII, I 9, Anal II 8. Dorsal spines stout, the second $\frac{1}{2}$ as long as the third, which is a little longer than the fourth and more than $\frac{1}{2}$ the length of head ; second and spine $\frac{2}{5}$ the length of head ; outer edges of soft dorsal and anal straight or slightly emarginate ; pectoral and ventral extending to origin of anal ; caudal notched, with rounded lobes 23-25 scales in a longitudinal series. Caudal peduncle $1\frac{1}{2}$ - $1\frac{2}{3}$ times as long as deep. Body with longitudinal blackish stripes which are, anteriorly, broader than the spaces between them ; a median one from between the eyes to the spinous dorsal, dividing to run on each side below the bases of the dorsal fins and reuniting on the upper part of the caudal peduncle ; the second, slightly curved, from above the eye to the upper part of the root of the caudal ; the third from the upper part of the eye to below the second dorsal ; the fourth from the eye along the middle of the side, ending in a spot at the base of the caudal ; the fifth from the snout through the lower part of the eye and the base of the pectoral to the lower part of the root of the caudal ; the sixth from the

† Atlas Ichthyol., VIII, pl. 48, fig. 4.

‡ Fische Südsee, pl. XX, fig. B.

§ l. c. fig. A.

lower jaw to the anal; a blackish stripe on the basal part of both soft dorsal and anal fins.

Length, to base of caudal, 73 mm.

Nine specimens, from Charbar, Mekran Coast, from Karachi, from the Nicobars (Day Coll.) and from Zanzibar (Playfair Coll.) This species is closely allied to *A. fasciatus* (White) and *A. endekataenia*. (Blkr.), differing from both in the arrangement of the stripes, the wider interorbital space and the included lower jaw.

APOGON SPILURUS (Pl. III, fig. 5).

Depth of body about $2\frac{3}{4}$ times in the length (without caudal), length of head $2\frac{3}{5}$ - $2\frac{2}{3}$ times. Snout shorter than eye, the diameter of which is $2\frac{3}{4}$ times in the length of head and greater than the interorbital width. Maxillary extending to below posterior edge of pupil; lower jaw scarcely projecting. Outer edge of præoperculum serrated; other bones of the head entire. Dorsal VII, I 9. Anal II 8. Dorsal spines rather slender, the second about half as long as the third, which is somewhat stronger but not longer than the fourth; longest dorsal spine about $\frac{1}{2}$ the length of head; second anal spine $\frac{1}{3}$ - $\frac{2}{5}$ the length of head; soft dorsal and anal with their outer edges emarginate; pectoral extending a little beyond, ventral nearly to origin of anal; caudal notched, with rounded lobes. 26 scales in a longitudinal series. Caudal peduncle $1\frac{1}{3}$ - $1\frac{1}{2}$ times as long as deep. A blackish longitudinal stripe from the snout through the eye to the edge of the præoperculum; a blackish spot on each side at the base of the caudal, usually above the lateral line and sometimes confluent dorsally with its fellow; a blackish stripe along the base of the anal.

Length, to base of caudal, 50 mm.

Five specimens from Karachi.

This species bears a considerable resemblance to the Japanese *A. notatus*, which is at once distinguished by the strongly projecting lower jaw.

APOGONICHTHYS NUDUS (Pl. III, fig. 6).

Depth of body about $3\frac{2}{3}$ times in the length (without caudal), length of head nearly 3 times. Snout shorter than the diameter of eye, which is $\frac{1}{3}$ the length of head and greater than the interorbital width. Cleft of mouth very oblique, the maxillary extending to below the anterior $\frac{1}{4}$ of eye, the lower jaw projecting. None of the bones of the head serrated; præoperculum with posterior edge slightly emarginate and

angle rounded. Dorsal VI, 19. Anal II 11. Dorsal spines feeble, the second or the second and third the highest; soft dorsal and anal with slightly emarginate outer edges; pectoral extending beyond origin of anal, ventrals to the vent; caudal notched, scales deciduous. Caudal peduncle twice as long as deep. A blackish line along the middle of the side from the operculum to below the end of the soft dorsal; fins immaculate.

Length, to base of caudal, 44 mm.

Nine specimens from Karachi.

Very closely allied to *A. gracilis* (Blkr.), which has II 12-13 anal rays, the first dorsal spine the highest, and the dark lateral stripe extending from the snout to the caudal.

CIRRHITICHTHYS CALLIURUS (Pl. II, fig. 3).

Depth of body about $2\frac{1}{4}$ times in the length (without caudal), length of head $3\frac{1}{4}$ - $3\frac{1}{2}$ times. Snout as long as the eye, the diameter of which is $3\frac{2}{3}$ times in the length of head, and a little greater than the interorbital width. Maxillary extending to below anterior $\frac{1}{4}$ of eye; præorbital entire, its depth $\frac{2}{3}$ the diameter of eye; præoperculum strongly serrated; supraclavicle serrated. Dorsal X 12, the fifth or sixth spine the longest, more than $\frac{1}{2}$ the length of head; the first soft ray produced, reaching the caudal when laid back. Anal III 6, the second spine the longest, as long as longest soft rays and nearly $\frac{2}{3}$ the length of head. Pectoral with 7 simple rays, extending a little beyond origin of anal; ventral extending to origin of anal; caudal truncate or slightly emarginate. 41-43 scales in a longitudinal series; 4-4 $\frac{1}{2}$ between first dorsal spine and lateral line; vertical fins covered with scales in their basal halves. Brownish, marbled with darker, the soft dorsal and anal and the caudal peduncle almost blackish; caudal fin pale yellowish, sharply separated from the dark colour of the caudal peduncle, with a pink tinge at the base, a dark posterior margin and a few dark spots.

Length, to base of caudal, 85 mm.

Two specimens from Muscat, 15-30 fathoms.

PLATYCEPHALUS NIGRIPINNIS (Pl. I, fig. 2).

Depth of body 6 times in the length (without caudal), length of head 3 times. Snout scarcely longer than the eye, the diameter of which is $4\frac{1}{4}$ times in the length of head, interorbital width $7\frac{1}{2}$ times, breadth of head $1\frac{3}{5}$ times. Maxillary extending to below anterior $\frac{1}{4}$ of eye. Upper surface of head flattish, with ridges not or very feebly serrated and not

distinctly spinate. Præoperculum with 3 spines, the upper $1\frac{1}{3}$ times in the distance from its base to the eye. Dorsal IX, 12, the third spine slightly longer than the second or fourth and nearly $\frac{1}{2}$ the length of head; soft dorsal highest anteriorly, the second ray as long as the longest spine. Anal 12. Pectoral extending $\frac{1}{2}$ the distance from its base to origin of anal, ventral a little beyond origin of anal. Caudal truncate. 80 scales in a longitudinal series; only the anterior 10-12 scales of the lateral line distinctly spinate. 5 or 6 indistinct dark blotches or bars on the side of the body; fins blackish, the anal pale at the base and with a narrow light edge.

Length, to base of caudal, 165 mm.

A single specimen from Muscat, 15-30 fathoms.

PLATYCEPHALUS TOWNSENDI (Pl. I, fig. 1).

Depth of body 7 times in the length (without caudal), length of head 3 times. Snout $1\frac{1}{6}$ - $1\frac{1}{4}$ times as long as eye, the diameter of which is $4\frac{1}{2}$ times in the length of head, interorbital width 9-10 times, breadth of head $1\frac{2}{3}$ times. Maxillary extending to below anterior $\frac{1}{4}$ of eye; upper surface of head with weakly serrated ridges bearing very indistinct spines. Præoperculum with 3 spines, the upper $1\frac{1}{3}$ times in the distance from its base to the eye. Dorsal IX, 12, the third spine nearly $\frac{1}{2}$ the length of head; soft dorsal highest anteriorly, the second ray as long as the longest spine. Anal 12. Pectoral extending $\frac{1}{2}$ the distance from its base to origin of anal, ventral a little beyond origin of anal. Caudal truncate. 53-56 scales in a longitudinal series; only the anterior 16-20 scales of the lateral line distinctly spinate. Brownish: some darker spots or bars on the cheek; base of the operculum blackish; the naked area above the pectoral and covered by the opercular flap is white, with black vermiculations. Spinous dorsal blackish, the spines spotted; soft dorsal with about 5 longitudinal series of spots on the rays: caudal and ventral blackish, with obscure spots, anal pale or dusky; pectoral barred with spots.

Length, to base of caudal, 157 mm.

Two specimens: Karachi; Muscat.

PLATYCEPHALUS MACULIPINNA (Pl. I, fig. 3).

Depth of body $7\frac{1}{2}$ -8 times in the length (without caudal), length of head 3 - $3\frac{1}{3}$ times. Snout $1\frac{1}{4}$ - $1\frac{1}{2}$ times as long as the eye, the diameter of which is $4\frac{1}{3}$ - $5\frac{1}{4}$ times in the length of head, interorbital width 8 times, breadth of head $1\frac{2}{3}$ - $1\frac{3}{4}$ times. Maxillary extending to below anterior $\frac{1}{4}$

of eye. Upper surface of head with ridges bearing some short spines at intervals, but not serrated, except the supraorbital ridge, which has 3 or 4 teeth. Præoperculum with a strong spine at the angle, as long as its distance from the orbit; below it a short spinous projection and sometimes another weaker one below that. Dorsal IX, 12; the third or fourth spine the highest, nearly $\frac{1}{2}$ the length of head; soft dorsal highest anteriorly, the first ray as long as the longest spine. Anal 13. Pectoral extending $\frac{1}{2}$ the distance from its base to origin of anal, ventral to origin of anal. Caudal truncate. 100-104 scales in a longitudinal series; lateral line spinate for its whole extent. Spinous dorsal with a large black blotch between the sixth and eighth spines; soft dorsal with small dark spots on the membrane in front of each ray; caudal blackish, with a pale lower edge; anal pale, immaculate; pectoral with small dark spots; ventral blackish, with a narrow white edge.

Length, to base of caudal, 190 mm.

Three specimens from Muscat, 15-30 fathoms.

LEPIDOTRIGLA OMANENSIS (Pl. II, fig. 2).

Depth of body $3\frac{1}{3}$ - $3\frac{2}{3}$ times in the length (without caudal), length of head $2\frac{2}{5}$ times. Snout a little longer than eye, the diameter of which is $3\frac{1}{3}$ - $3\frac{2}{3}$ times in the length of head and equal to the depth of the præorbital. Interorbital width 5 times in the length of head. Maxillary extending to vertical from anterior margin of eye or a little beyond. Snout with a pair of short strongly divergent pointed processes, with entire or minutely denticulated edges; interorbital space strongly concave, and with a well-marked transverse groove behind it. Dorsal VIII, 14; the second and third spines the longest, less than $\frac{1}{2}$ the length of head. Anal 14. Pectoral extending to above 5th ray of anal, ventral to origin of anal. Caudal slightly emarginate. Scales feebly ciliated, those of the lateral line unarmed; 53-57 scales in a longitudinal series, $2\frac{1}{2}$ series above the lateral line; 21-23 spiny plates along each side of the bases of the dorsal fins. Inner surface of pectoral black, without white spots but with a white margin which is broadest below; spinous dorsal blackish posteriorly; other fins immaculate.

Length, to base of caudal, 88 mm.

Three specimens from the Sea of Oman at a depth of 180 fathoms.

In the allied *L. spiloptera* (Gthr.) the outer edges of the præorbital spines are parallel instead of divergent as in this species, whilst the number of fin-rays is different.

PERCIS SMITHII.

Depth of body 6 times in the length (without caudal), length of head 4 times. Snout shorter than eye, the diameter of which is $3-3\frac{1}{4}$ times in the length of head and nearly 3 times the interorbital width. Maxillary extending to below anterior edge of pupil. Præoperculum denticulated; suboperculum finely serrated. Dorsal V, 22; the fourth spine the longest, more than $\frac{1}{3}$ the length of head and more than twice as long as the fifth. Anal 19. Caudal slightly emarginate. Pectoral as long as the distance from anterior edge of eye to extremity of opercular spine. Ventrals extending to the vent. 60 scales in a longitudinal series. Brownish (in spirit) with traces of darker blotches or bars on the side; spinous dorsal pale; soft dorsal with two rows of white spots; caudal with undulating alternate light and dark cross-bars and with a pair of dark spots near the base; pectoral pale, with a dark axillary blotch; ventral pale, with the innermost ray blackish; anal pale, immaculate.

Length, to base of caudal, 113 mm.

Two specimens from Muscat, 15-30 fathoms.

CALLIONYMUS PERSICUS (Pl. III, fig. 1).

Depth of body $6\frac{2}{3}-7\frac{2}{3}$ times in the length (without caudal), length of head $3\frac{1}{4}-3\frac{3}{5}$ times; breadth of head $4-4\frac{1}{2}$ times. Diameter of eye $3-3\frac{1}{2}$ times in the length of head; eyes contiguous; gill-opening small, superior; præopercular spine straight, with serrated inner edge and a forwardly directed spinous process at its base. Lateral line single. Dorsal IV, 9; the anterior fin, in the male, elevated, and with the rays produced as filaments, in the female lower and with the rays not produced; rays of the second dorsal equal, the last reaching the base of caudal when laid back. Anal 8, the posterior rays the longest. Ventrals extending to pectorals beyond origin of anal. Caudal, in the male, elongate, as long as the fish, in the female about $\frac{1}{3}$ as long. Body with 4 or 5 irregular dark cross-bands and with dark mottlings and light spots. Males with a V-shaped or heart-shaped blackish blotch on the throat, on each side of which alternate light and dark longitudinal stripes separated by narrow white lines extend back from the apex of the lower jaw over the gill membranes on to the ventral fin. Anterior dorsal dark, with undulating oblique white lines and with a small black spot at the upper margin just behind the second ray; second

dorsal with 3 or 4 rows of oblong dark spots; anal with a blackish band on its outer half, which is continued on the lower part of the caudal; caudal with several vortical series of oblong dark spots.

Length, to base of caudal, 56 mm.

Twelve specimens from the Persian Gulf, from the Mekran Coast and from Muscat.

CALLIONYMUS MARGARETÆ (Pl. III, fig. 3).

Depth of body 8 times in the length (without caudal), length of head $3-3\frac{1}{2}$ times, breadth of head 4 times. Diameter of eye $2\frac{2}{3}$ times in the length of head; eyes contiguous; gill—opening small, superior; præopercular spine straight, with serrated inner edge and a forwardly directed spinous process at its base. Lateral line single. Dorsal IV, 9; the anterior fin, in the male, with the first ray produced into a filament; second dorsal with the rays equal, the last reaching the base of caudal when laid back. Anal 8, the posterior rays the longest. Ventral extending beyond origin of anal. Caudal, in the male, elongate, as long as the fish. Body with dark spots and markings; a blackish oblong or triangular patch on the throat (in the male); anterior dorsal blackish, with white bars anteriorly and white spots posteriorly; second dorsal with 3 or 4 rows of oblong dark spots; anal with a blackish marginal band, which is continued on the lower part of the caudal; caudal with vortical series of oblong dark spots.

Length, to base of caudal, 47 mm.

Two specimens (males) from Muscat, 15-30 fathoms.

Very similar to *C. persicus*, but with a larger eye and without the elevated anterior dorsal and the striped throat of the males of that species.

CALLIONYMUS MUSCATENSIS (Pl. III, fig. 2).

Depth of body 7 times in the length (without caudal), length of head (to gill—opening) $3\frac{1}{3}$ times. Eyes contiguous, their diameter $\frac{1}{2}$ the length of head; gill—opening in front of the upper edge of the base of pectoral; præopercular spine straight, with both outer and inner edges denticulated, the inner edge with 5 teeth, the outer with 3 or 4, the anterior of which is directed forwards. Dorsal IV, 8; the anterior fin elevated and its rays produced in the male; caudal, in the male, elongate, nearly $\frac{2}{3}$ the length of the fish. Anal 8, the last ray elongate in the male. Greyish, with darker markings; caudal with dark cross-bars or series of spots; anal with a dark margin; dorsal fins, in the male, black-

ish; in the female, anterior dorsal with a large oblong black spot between third and fourth rays; second dorsal with series of spots on the rays.

Length, to base of caudal, 35 mm.

Two specimens from Muscat, 15-30 fathoms.

This species approaches the genus *Vulsus* in the structure of the præopercular spine.

BLENNIUS PERSICUS (Pl. II, fig. 1).

Depth of body nearly equal to length of head and $5-5\frac{2}{3}$ times in the length (without caudal). Diameter of eye about $\frac{1}{4}$ the length of head and twice the interorbital width. Snout nearly vertical; cleft of mouth extending to below posterior margin of eye. No canine teeth. A pair of well-developed simple tentacles inserted close together on the occiput and a pair of smaller simple tentacles at the anterior nostrils; no supra-orbital tentacles; no occipital crest. Dorsal XII, 20; the spinous portion composed of flexible spines, the longest $\frac{3}{4}$ the length of head, the twelfth much shorter, about $\frac{1}{2}$ the length of the longest ray, which is $\frac{3}{4}$ the length of head; a notch between the two dorsals; last dorsal ray connected by a membrane to the procurrent rays of caudal. Anal 23. Caudal truncate rounded. Pectoral slightly longer than head, extending to origin of anal. Sides of body with 6 obscure dark blotches or bars and anteriorly with 4-6 vertical whitish stripes which extend across the abdomen below, posteriorly with small white spots; spinous dorsal with 3 dark bars, running obliquely forwards and upwards, confluent at the margin and below continuous with those of the body; second dorsal dusky, with oblique white stripes running backwards and upwards and breaking up into spots near the margin; caudal dusky, barred with white spots; anal with blackish marginal and light intramarginal bands.

Length, to base of caudal, 72 mm.

Three specimens from the Persian Gulf, 10-20 fathoms.

SALARIAS ANOMALUS (Pl. II, fig. 4).

Depth of body nearly equal to length of head and $4\frac{1}{2}$ -5 times in the length (without caudal). Diameter of eye nearly $\frac{1}{4}$ the length of head and twice the interorbital width. Forehead projecting beyond the snout; cleft of mouth extending to below posterior margin of eye. No canine teeth. Anterior nostrils with a pair of well-developed simple tentacles, which arise almost at the orbital margin in front of the middle of the eye; no supraorbital or occipital tentacles, no occipital crest. Dorsal XII, 19-20, the spinous portion composed of flexible

spines, elevated, the longest spines in some examples (? females) less than the depth of body, in others (? males) produced, more than the depth of body; second dorsal low, the last ray attached by a membrane to the caudal peduncle anterior to the procurent caudal rays. Anal 23-24. Caudal rounded, but with the outer rays produced, giving a trilobed appearance. Pectoral shorter than the head, not extending to origin of anal. Brownish; fins pale; margin of anal and middle rays of caudal blackish.

Length, to base of caudal, 60 mm.

Several specimens from the Persian Gulf and the Mekran Coast.

PETROSCIRTES MEKRANENSIS.

Depth of body equal to length of head, $5\frac{1}{4}$ times in the length (without caudal). Snout not projecting beyond the mouth, which extends to below the middle of eye. Diameter of eye $\frac{1}{4}$ the length of head and greater than the interorbital width. Canine teeth strong, specially in the lower jaw. A well-developed triangular crest extending from between the eyes nearly to origin of dorsal (? in males only); no tentacles. Dorsal 32, highest posteriorly. Anal 23. Caudal rounded. Pectoral $\frac{5}{6}$, ventral $\frac{2}{3}$ the length of head. 6 pairs of dark vertical bars on sides of body, and posteriorly small white spots also; head with similar bars which are, however, irregular and somewhat oblique; occipital crest with dark vermiculations; dorsal anteriorly with dark median and marginal longitudinal lines; anal and pectoral with dark lower margin.

Length, to base of caudal, 49 mm.

A single specimen from Jask, Mekran Coast.

PETROSCIRTES TOWNSENDI (Pl. III, fig. 7).

Depth of body about $5\frac{1}{4}$ times in the length (without caudal), length of head $4\frac{2}{3}$ times. Snout projecting beyond the mouth, which is transverse, inferior, below anterior part of eye. Diameter of eye $\frac{1}{3}$ the length of head and equal to the interorbital width. No canines in the upper jaw, those of the lower jaw strong. Head without crest or tentacles. Dorsal 34, with the rays gradually decreasing in length in the latter half of the fin. Anal 22. Caudal emarginate. Pectoral $\frac{4}{5}$, ventral $\frac{1}{3}$ the length of head. Brownish, fins pale; anterior part of dorsal with a prominent black marginal stripe.

Length, to base of caudal, 31 mm.

A single specimen from Jask, Mekran Coast.

2. LIST OF DEEP-SEA FISHES FROM THE SEA OF OMAN.

1. *Uroconger lepturus*, Richards ... (140-205 faths.)
2. *Scopelus pyrsobolus*, Alc. ... (225 faths.)
3. *Harpodon squamosus*, Alc ... (170-243 faths.)
4. *Champsodon vorax*, Gthr. ... (-140 ,,)
5. *Physiculus argyropastus*, Alc. ... (107-205 ,,)
6. *Epinephelus praeopercularis*, Blgr. ... (-175 ,,)
7. ,, *undulosus*, Q. G.... ... (-170 ,,)
8. *Synagrops philippinensis*, Gthr. ... (170 faths.)
9. *Parasclopsis townsendi*, Blgr. ... (140-225 faths.)
10. *Gobius cometes*, Alc. ... (180 faths.)
11. *Laeops macrophthalmus*, Alc. ... (180 ,,)
12. *Cynoglossus carpenteri*, Alc. ... (170-243 faths.)
13. *Solea unbratilis*, Alc. ... (98 faths.)
14. *Tetraroge guentheri*, Blgr. ... (142 ,,)
15. *Minous inermis*, Alc. ... (-180 faths.)
16. * *Trigla arabica*, Blgr. ... (-180 ,,)
17. *Lepidotrigla omanensis*, Rgn.... (180 faths.)
18. *Callionymus carebares*, Alc. ... (98-180 faths.)
19. *Neobythites steaticus*, Alc. ... (175 faths.)

3. LIST OF FISHES OF THE PERSIAN GULF.

1. *Amphisile strigata*, Gthr.
2. † *Psenes indicus*, Day.
3. *Epinephelus taurina*, Forsk.
4. ,, *argus*, Bl. Schn.
5. ,, *fuscoguttatus*, Forsk.
6. ,, *chlorostigma*, C. V.
7. ,, *merra*, Bl.
8. *Anthias townsendi*, Blgr.

* *Trigla hemisticta* (non Schlegel) Day, Fishes of India, Suppl. p. 791 (1888), and Aleoek. Cat. Ind. Deep-sea Fishes, p. 67 (1899).

† *Psenes indicus* is only doubtfully distinct from the Atlantic *Ps. regulus* (Poey). The latter has been figured by Goode & Bean (Oceanic Ichthyology, fig. 329) under the name *Ps. maculatus* (non Lutken). According to this figure the scales are more numerous in a vertical series than in *Ps. indicus* (compare Day's figure) but other differences are not evident.

9. *Anthias hypselosoma*, Blkr.
10. *Apogon quadrifasciatus*, Val.
11. „ *bifasciatus*, Rüpp.
12. „ *nigripinnis*, C. V.
13. *Mesoprion annularis*, C. V.
14. „ *erythropterus*, Bl.
15. *Pagrus spinifer*, Forsk.
16. *Lethrinus striatus*, Sldr.
17. *Scolopsis ghanam*, Forsk.
18. *Pristipoma stridens*, Forsk.
19. *Diagramma pictum*, Thunb.
20. *Pseudochromis persicus*, Blgr.
21. „ *nigrovittatus*, Blgr.
22. *Heniochus macrolepidotus*, L.
23. *Drepane punctata*, L.
24. *Teuthis nebulosa*, Q. G.
25. *Pomacentrus jerdoni*, Day.
26. „ *obtusirostris*, Gthr.
27. *Glyphidodon sindensis*, Day.
28. „ *caelestinus*, C. V.
29. *PlatyGLOSSUS hyrtelii*, Blkr.
30. „ *roseus*, Day.
31. „ *dussumieri*, C. V.
32. *Pseudoscarus jantochir*, Blkr.
33. *Scorpaena cirrhosa*, Thunb.
34. *Pterois russellii*, Benn.
35. *Scomber microlepidotus*, Rüpp.
36. *Gobius albopunctatus*, C. V.
37. „ *ophthalmotenia*, Blkr.
38. „ *townsendi*, Blgr.
39. „ *hoplopomus*, C. V.
40. *Eleotris diadematus*, Rüpp.
41. *Psettodes erumei*, Bl. Schn.
42. *Pseudorhombus arsius*, Ham. Buch.
43. *Synaptura zebra*, Bl.
44. *Percis nebulosa*, Q. G.
45. *Callionymus persicus*, Rgn.
46. *Blennius persicus*, Rgn.

47. *Salarias sindensis*, Day.
48. „ *bussumieri*, C. V.
49. „ *fasciatus*, Bl.
50. „ *opercularis*, Murr.
51. „ *anomalus*, Rgn.
52. *Petroscirtes barbatus*, Ptrs.
53. *Batrachus grunniens*, L.
54. *Antennarius nummifer*, Cuv.
55. *Monacanthus oblongus*, Schleg.
56. „ *tomentosus*, L.
57. *Ostracion cyanurus*, Rüpp.

4. FISHES FROM MUSCAT.

The following are not included in Steindachner's List of Fishes from the East Coast of Arabia :—

1. *Trygon walga*, Müll & Henle.
2. *Muraena pseudothyrsoides*, Blkr.
3. *Pegasus natans*, L.
4. *Amphisile strigata*, Gthr.
5. *Epinephelus merra*, Bl.
6. *Cirrhitichthys callinurus*, Rgn.
7. *Apogon thurstoni*, Day.
8. „ *holotaenia*, Rgn.
9. *Genyoroge bengalensis*, Bl.
10. *Upeneus indicus*, Shaw.
11. *Epula rivulata*, Schleg.
12. *PlatyGLOSSUS bimaculatus*, Rüpp.
13. *Dymæria flagellifera*, C. V.
14. *Scorpaena cirrhosa*, Thunb.
15. „ *rosea*, Day.
16. *Minous inermis*, Ale.
17. *Apistus alatus*, C. V.
18. *Prosopodasys leucogaster*, Richards.
19. *Platycephalus subfasciatus*, Gthr.
20. „ *nigripinnis*, Rgn.
21. „ *townsendi*, Rgn.
22. „ *maculipinna*, Rgn.
23. *Lepidotrigla bispinosa*, Stdr.

24. *Gobius andamanensis*, Day.
25. *Percis pulchella*, Schleg.
26. „ *smithii*, Rgn.
27. *Trichonotus setigerus*, Bl. Schn.
28. *Callionymus filamentosus*, C. V.
29. „ *persicus*, Rgn.
30. „ *margaretæ*, Rgn.
31. „ *muscatensis*, Rgn.
32. *Blennius semifasciatus*, Rüpp.
33. *Rhomboidichthys pantherinus*, Rüpp.
34. „ *grandisquamis*, Schleg.
35. „ *poecilurus*, Blkr.

5. FISHES FROM THE MEKRAN COAST AND KARACHI.

A list of the Fishes collected by Mr. Townsend on the Mekran Coast is being published in the Imperial Baluchistan Gazetteer. In this, *Apogon fasciatus* (White), *Equula nuchalis* (Schleg.), and *Callionymus longicaudatus* (Schleg.) should be replaced by *Apogon melanotænia* (Rgn.), *Equula laura* (Cuv.), and *Callionymus persicus* (Rgn.) respectively, and the following species should be added :—

- Opisthognathus nigromarginatus*, Rüpp.
- PlatyGLOSSUS dussumieri*, C. V.
- Minous monodactylus*, Bl. Schn.
- Gobius ornatus*, Rüpp.
- Eleotris diadematus*, Rüpp.
- Salarias anomalus*, Rgn.
- Petroscirtes punctatus*, C. V.
- „ *mekranensis*, Rgn.
- „ *townsendi*, Rgn.

Karachi falls within the province treated of in Day's "Fishes of India," and the additions, except in the case of the new species described above, are unimportant.

